A STATISTICAL STUDY OF THE RELATIONSHIP OF PHYSICAL FITNESS PERSONALITY AND INTELLIGENCE OF ELEMENTARY SCHOOL GIRLS

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

Ever since the inclusion of physical education in the school curriculum there have been differences of opinion as to the relationship of physical fitness, personality, and intelligence. Out of these differences have grown many misconceptions concerning the effect of physical education activities on the personality and intelligence of an individual. Many people have the idea that only the intellectual inferior and the maladjusted individual remain superior in the area of physical fitness, while others believe in physical education as a beneficial influence on intelligence and personality. Results of studies that have been made do not substantiate either belief consistently, and no study has previously been made on the relationship of all three factors on the elementary school level.

I. THE PROBLEM

Statement of the problem. It was the purpose of this study (1) to determine the relationship of physical fitness and intelligence; (2) to determine the relationship of physical fitness and personality; and (3) to determine the relationship of intelligence and personality, with physical fitness being held constant, of elementary school girls.

Importance of the study. Intellectually inferior students and maladjusted individuals have long been associated with superior physical fitness. This is evidenced by the belief of many individuals that the typical high school or college athlete possesses all muscle and no brain, and is socially accepted only because of his athletic ability. Because of this supposition many believe that physical education hinders intellectual accomplishment and personality development. If these criticisms are true, if the intellectually inferior and the maladjusted individuals are the more physically fit, then some revision needs to take place in the physical education program in the elementary grades. If these criticisms are not true, if it is found that on the elementary level the more physically fit are also the most intellectually capable and have the highest level of personality adjustment, then the conclusion that physical education helps in developing intellectual ability and desirable personality traits may be drawn. Such a conclusion would justify more extensive requirements in physical education in both the elementary and the high school curriculum, and statistical data would be available with which to help sell the physical education program to the public and to justify physical education as a part of the school curriculum on all levels of the educational ladder.

II. DEFINITIONS OF TERMS USED

Affiliation. Affiliation is used in this study to denote the degree of association or relationship of one individual to a group in terms of social or anti-social behavior.

Anti-Social tendencies. These are tendencies characteristic of the anti-social person who endeavors to get his satisfactions in ways that are damaging and unfair to others. Characteristic of these tendencies are bullying, frequent quarreling, disobedience, and destructiveness to property.[1]

Apathy. Refers to morbid indifference, a condition in which zest for life has been lost.[2]

Ascendance. A term used to denote the personality trait of dominance, or an individuals ability to control or command most situations.[3]

Athlete. Any student who has been on an interscholastic team and has qualified for an award.[4]

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[1]Loues P. Thorpe, Willis W. Clar, and Earnest W. Tiegs, Manual-California Test of Personality, (Los Angeles: California Test Bureau, 1953), p. 3.

[2]Philip L. Harriman, The New Dictionary of Psychology (New York: Philosophical Library, 1947), p. 29.

[3]Roland H. Jones, "A Comparison of the Intelligence of High School Athletes With Non-Athletes", School and Society, XXXXII (September, 1935), pp. 415-16.

[4]Charles M. Harsh and H. Schrickel, Personality Development and Assessment (New York: The Ronald Press Co., 1950), p. 307.

Autonomy. Refers to the quality of independence and is used in regard to personality characteristics.

California Test of Personality Form AA. A test designed to identify and reveal the status of certain highly important factors in personality and social adjustment usually designated as intangibles. The test detects the areas and specific types of tendencies to think, feel, and act which reveal undesirable individual adjustments.[5]

Community Relations. This is an area of measurement on the California Test of Personality and refers to an individuals adjustment in his community.[6]

Deference. This term, in regard to personality adjustment, refers to respectful submission or yielding, as to another's opinion, wishes or judgment.[7]

Extroversion. Refers to the type of behavior characterized by a channeling of energy outward toward people, objects, and events in the external world.[8]

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[5]Louis P. Thorpe, Willis W. Clark, and Earnest W. Tiegs, op. cit., p. 2.

[6]Thorpe, Clarke, and Tiegs, op. cit., p. 4.

[7]Harsh and Schrickel, op. cit., p. 307.

[8]Thorpe, Clark, and Tiegs, op. cit., p. 4.

Family Relations. This is an area measured on the California Test of Personality and refers to the relationship of the subject to his home. The individual who exhibits desirable family relationships feels that he is loved and well treated at home, and has a sense of security and self-respect in connection with the various members of his family.[9]

Feeling of belonging. An area measured by the California Test of Personality which includes measurement of the degree to which an individual feels that he belongs when he enjoys the love of his family, the well-wishes of good friends, and a cordial relationship with people in general.[10]

Feminity. This term refers to the degree that an individual possesses those characterics usually ascribed to the female sex.

Intelligence. The quality, exercise, or product of active intellect; the capacity to know or understand; the ability to exercise the higher mental functions and readiness of comprehension.

Intelligence quotient. The sum of the division of the

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[9]Ibid.

[10]Ibid.

mental age by the chronological age in order to have a convenient expression for the ratio of intelligence to actual age.[11]

Intelligence Test. An item or series of items designed to measure the higher intellectual capacities of an individual.[12]

Introversion. The type of behavior characterized by a finding of the greatest satisfactions and solution to problems in a self created subjective realm which shuns contact with the external world.[13]

Level of probability. The degree of confidence or probability in quantitative terms which may be placed in certain inferences drawn from the facts obtained from a random sample.[14]

Masculinity. This term refers to the degree that an individual possesses those characteristics usually ascribed to the male sex.

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[11]Harriman, op. cit., p. 3.

[12]Ibid.

[13]Harsh and Schrickel, op. cit., p. 307

[14]E. F. Lindquist, A First Course in Statistics (New York: Houghton Mifflin Company, 1942), pp. 106-107.

Mental age. The ability to learn as readily as another person of the same or different chronological age; the chronological age to which the score made on an intelligence test corresponds.

Nervous symptoms. This is an area measured by the California Test of Personality and includes measurement of the degree to which an individual suffers from loss of appetite, eye strain, inability to sleep, or a tendency to be chronically tired.[15]

Non-athlete. Any student who has not been on an interscholastic athletic team.[16]

Personality. This is an inclusive term designed to characterize the whole person in action in the social setting.[17]

Physical Fitness. Physical fitness is a positive quality possessed to some degree by all living individuals. This degree may be interpreted in terms of the individuals capacity for performance and endurance in physical activities.[18]

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[15]Thorpe, Clark, and Tiegs, op. cit., p. 3.

[16]Jones, op. cit., pp. 15-16.

[17]Thorpe, Clark, and Tiegs, op. cit., p. 4.

[18]H. Harrison Clarke, Application of Measurement to Health and Physical Education (New York: Prentice-Hall Inc., 1953) p. 55

School relations. This is an area measured by the California Test of Personality and includes measurement of the degree to which an individual feels that his teachers like him, that he enjoys being with other students, and that he finds the school work adapted to his level of interest and maturity.[19]

Self reliance. This is an area measured by the California test of Personality. An individual may be said to be self-reliant when his actions indicate that he can do things independently of others, depend upon himself in various situations, and direct his own activities.[20]

Sense of personal freedom. This is one of the areas measured by the California Test of Personality. An individual enjoys a sense of freedom when he is permitted to have a reasonable share in the determination of his conduct and in setting his own goals.[21]

Sense of personal worth. An individual possesses a sense of personal worth when he feels he is well regarded by

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[19]Thorpe, Clark, and Tiegs, op. cit., p. 4.

[20]Ibid. p. 3.

[21]Ibid. p. 3.

others, when he feels that others have faith in his future success, and when he believes that he has average or better than average ability. This area is measured by the California Test of Personality.[22]

Social Skills. An individual is said to be socially skillful when he shows a liking for people, when he inconveniences himself to be of assistance to them, and when he is diplomatic in his dealings with both friends and strangers. This area is measured by the California Test of Personality.[23]

Social Standards. The individual who recognizes desirable social standards is one who has come to understand the rights of others, and who appreciates the necessity of subordinating certain desires to the needs of the group.[24]

The profile. A graphical illustration of the adjustment, both personal and social, of the students as a class in terms of percentile ranks, and of the degree of total adjustment as shown by the California Test of Personality.

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[22]Ibid. p. 3.

[23]Ibid. p. 3.

[24]Ibid. p. 3.

Withdrawing tendencies. This term refers to individuals who substitute the joys of a fantasy world for actual successes in real life. These individuals are usually sensitive, lonely, and given to self-concern.[25]

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[25]Thorpe, Clark, and Tiegs, op. cit., p. 3.

CHAPTER II

REVIEW OF THE LITERATURE

There is no information available to the writer concerning the relationship of physical fitness, as this term is strictly defined, to personality and intelligence. Because it is generally assumed that one must possess a desirable degree of physical fitness in order to participate vigorously and skillfully in athletic events, the studies reported here deal with the relationship of athletic ability, personality, and intelligence. These studies have been done on the secondary school level only, and are concerned with the relationship of only two of these factors with no multiple correlations having been done. A summary of the work done on the secondary level will be given here on the assumption that this work will justify similar studies on the elementary school level.

I. LITERATURE CONCERNING THE RELATIONSHIP OF ATHLETIC ABILITY AND PERSONALITY

In 1942 Sperling, using 435 subjects, made a study of the relationship of personality adjustment and athletic ability. He measured personality adjustment by: The Human Inventory, The Introversion-Extroversion Scale, The Ascendance-Submission Reaction Scale, A Social Study by M. Harper, and

A Study of Values by Wallport and Vernon. Achievement in physical education activities was measured by a differentiation with respect to athletic achievement; namely, varsity athletes, intramural athletes, and non-athletes. Subjects who did not participate in either varsity or intramural athletic events were classified as non-athletes. Coefficients of intercorrelation were obtained between the scales used for the measurement of personality traits. Sperling found statistically reliable differences in the personality patterns of the varsity and intramural groups as distinguished from the non-athlete group. In personality adjustment scores and ascendance and extroversion, the varsity and intramural group proved to be superior to the non-athlete group. The non-athlete group was found to be more liberal-minded than the two athlete groups. The varsity and intramural groups were found to be more significantly motivated by a desire for power, and to a lesser extent by a social love of people. The non-athlete group was found to be more aesthetic and theoretically minded. The greater the athletic experience, the more favorable the adjustment score, and the more this score was ascendant and extroverted. Sperling concluded that this study shows that a more socially desirable degree of personality development accompanies a greater degree of experience in athletic activities, and that athletic

experience is desirable for maximum personality development.[26]

Flanagan made a similar study with the purpose of comparing the personality traits of fencers and other physical activity groups. A personality inventory, consisting of items measuring ascendance-submission, masculinity-feminity, extroversion-introversion, and emotional stability-emotional-instability, was given to 221 students taking activity courses in fencing, badminton, basketball, volleyball, boxing, and swimming. Flanagan found that fencers were more ascendant than basketball players, volleyball players, and boxers, that fencers were more feminine than basketball players at the three percent level of probability; that badminton players were more extroverted than volleyball players at the two-percent level of probability, and that volleyball players were more emotionally unstable than basketball players at the two percent level of probability.[27]

Thune made a study on the personality of weightlifters. He administered a personality inventory to one hundred YMCA male weightlifters and to one hundred other YMCA male athletes who were non-weightlifters. Statistically significant

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[26]Abraham P. Sperling, "The Relationship Between Personality Adjustment and Achievement in Physical Education Activities", Research Quarterly, XIII (October, 1942), pp. 351-363.

[27]John B. Flanagan, "The Relationship of Personality Traits of Fencers With Other Physical Activity Groups", Research Quarterly XIV (September, 1945), pp. 261-269.

differences were found between the weightlifters and the controls in the catagories of present health, self-confidence, and manly-individuality. Objectively, according to Thune, the study showed that training with weights appeals to a group that differs in interests, attitudes, and personality from the rest of the active YMCA membership. Specifically it was found that members of the weightlifting group felt more strongly than did the controls that their health had improved, that they were shy and lacked self-confidence, and that they did not obtain satisfaction through participating at a loss in the more traditional physical education activities. They were motivated by a desire for dominance.[28]

Biddulph performed a study with the purpose of determining the personal and social adjustment of high school boys of low athletic achievement as compared with the adjustment of boys of high athletic achievement. 461 sophomore and junior boys, free from physical and exceptional influences, such as broken homes and alcoholic parents, were used as subjects. The California Classification Plan was used to classify subjects for measurement in the selected tests, and the boys were measured in terms of athletic achievement and personal and social adjustment. A comparison of means and

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[28]John B. Thune, "Personality of Weightlifters," Research Quarterly, XX((October, 1949), pp. 296-306.

standard deviations of the two groups was made using the critical ratio technique. Biddulph found that those ranking high in athletic achievement demonstrated a significantly greater degree of personal and social adjustment than did those ranking low in athletic achievement. In view of this Biddulph contends that greater emphasis be placed on intramural activities rather than on interscholastic activities which neglect the majority of boys.[29]

2. LITERATURE CONCERNING THE RELATIONSHIP OF ATHLETIC ABILITY AND INTELLIGENCE

Davis performed a study to determine the relationship between athletic ability and scholarship. He found that the non-athlete, among the group studied, did better in school work than did the athlete, that the athlete usually graduated with his class, and that chances were greater that the athlete would not drop out of school. Students classified as non-athletes were those who did not participate in any athletic events.[30]

Di Giovanna made a study of the relationship of intelligence and athletic ability of college men. 295 subjects were

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[29]Lowell G. Biddulph, "Athletic Achievement and the Personal and Social Adjustment of High School Boys," Research Quarterly, XXV (July, 1954), pp. 1-7.

[30]Edward C. Davis and John A. Cooper, "Athletic Ability and Scholarship," Research Quarterly, V (December, 1934), pp. 68-76.

used. Intelligence was measured by the Otis Self Administering Test of Mental Ability. Di Giovanna found no definite correlation between intelligence and athletic ability.[31]

A study by Hackensmith and Miller was made with the purpose of finding if relationship exists between academic grades and intelligence scores of participants and non-participants in intramural athletics. They found that, over a four-year period of college, participants were significantly higher both in grades and in intelligence scores. They also found that the grades of the participating freshmen were not lower than the grades of the non-participating freshmen.[32]

Diller made a comparison of test performances of male and female juvenile delinquents. Eighty female and eighty-seven male subjects, matched for age, grade placement, and global intelligence quotients on the Wechsler-Bellevue Adult Intelligence Scale and the Wide Range Achievement Test were used. Diller found that the boys and girls were endowed with the same degree of potential intelligence, that the boys revealed a strong tendency for superiority in the sphere of

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[31]Vincent G. Di Giovanna, "A Comparison of the Intelligence and Athletic Ability of College Men," Research Quarterly, VIII (October, 1937), pp. 96-104.

[32]C. W. Hackensmith and L. Miller, "A Comparison of the Academic Grades and Intelligence Scores of Participants and Non Participants in Intramural Athletics at the University of Kentucky," Research Quarterly, IX (March, 1938), pp. 94-99.

reality contact, that the boys and girls were low on motivational cluster, and that the boys and girls were mildly inadequate in the psychomotor area of function.[33]

Seegers and Postpichal did a study on the relationship of intelligence and certain aspects of physical ability. 656 boys were used as subjects. A mental score was attained for each subject, and each subject was given athletic tests by the physical education teacher in various items which reveal physical fitness. These athletic tests were repeated after an interval of one month. Correlations for both sets of scores for each event were made, and subjects were grouped chronologically at step intervals of one year. Intelligence and athletic ability were calculated separately for each age group. Calculations included correlations between intelligence scores and scores in each event for each age level. Seegers and Postpichal found that correlations between intelligence scores and athletic events were positive but low. Intelligence correlations were higher for more complicated athletic events, and the brighter boys tended to make better scores.[34]

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[33]Juliet C. Diller, "A Comparison of the Test Performances of Male and Female Juvenile Delinquents," Journal of Genetic Psychology, LXXXVI (March-June, 1955), pp. 217-235.

[34]J. C. Seegers and O. Postpichal, "Relation Between Intelligence and Certain Aspects of Physical Ability," Journal of Educational Research, XXX (October, 1936), pp. 104-109.

Jones made a study to find if the intelligence of high school athletes is greater than that of non-athletes. He classified an athlete as any student who had been on an inter-scholastic athletic team and had qualified for an award. All other students were classified as non-athletes. Intelligence was measured by the Illinois General Intelligence Scale. Thirty-one subjects were studied. Intelligence Quotients were calculated and recorded on individual record cards. A list of athletes was obtained from the office of the athletic director. A comparison of the Intelligence Quotients of the non-athletes with the Intelligence Quotients of the athletes revealed that a smaller per cent of the athletes had an Intelligence Quotient below ninety. Jones found the curve of the athletes higher than that of the non-athletes in the Intelligence Quotient range of from ninety to 120 except at the Intelligence Quotient point of 105. There was no difference in the Intelligence Quotients of the athletes and the non athletes between the range of 120 and 145. Jones concluded that high school athletes are more intelligent than non-athletes, that a smaller per cent of athletes than non-athletes is in the lower Intelligence Quotient level, and that a larger per cent of athletes than non-athletes are in normal and superior groups of intelligence.[35] Jones further concluded that participation in athletic events is conducive

to intellectual stimulation.[35]

3. LITERATURE ON THE RELATIONSHIP OF PERSONALITY AND INTELLIGENCE

Stone and Ganung performed a study to determine the relationship of scholastic achievement and personality. Personality was measured by the Minnesota Multiphasic Personality Inventory. 126 female students were used as subjects. Stone and Ganung desired to determine if differences in success for four years of college could be found between those who had "high" scores on the Minnesota Multiphasic Personality Inventory and those whose scores were normal. They found that over the four year experience those girls who scored "high" (T of 70 or above) on one or more scales of the Minnesota Multiphasic Personality Inventory received a lower grade point average than did those who were normal. More of the "normal" group graduated as compared with the "high."[36]

Pearson and Amacher performed a study to determine the relationship of the intelligence and personality of 3594

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[35]Roland H. Jones, "A Comparison of the Intelligence of High School Athletes With Non-Athletes," School and Society, XXXXII (September, 1935), pp. 415-416.

[36]David R. Stone and George R. Ganung, "A Study of Scholastic Achievement Related to Personality as Measured by the Minnesota Multiphasic Personality Inventory," Journal of Educational Research, L (October, 1956), pp. 155-156

unwed mothers in Minnesota. The average Intelligence Quotient of these subjects was 100.19 and the standard deviation was 18.36. Personality or behavior disorder was present in 27.24% of the cases, and prevalent in those of low intelligence.[37]

Lightfoot made a study of personality characteristics of bright and dull children. His purpose was to determine if personality differences exist between gifted and dull children. 104 children, for whom complete records were available, were the subjects of this study. The group was composed of forty-eight bright children and fifty-six relatively dull children ranging in age from ten years to thirteen years. The bright children ranged in Intelligence Quotients from 130 to 200 as measured by the Stanford-Binet Intelligence Test, and the dull children ranged in Intelligence Quotients from 68 to 104 as measured by the same test. Twenty variables of personality selected from the Harvard Psychological Study, Explorations in Personality, were utilized as the framework of this investigation. Two judges who had never seen the subjects were employed to consider all of the data and to render judgment in regard to each variable. Lightfoot found that significant differences existed between the bright and dull

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[37] John S. Pearson and Phyllis L. Amacher, "Intelligence Test Results and Observations of Personality Disorders Among 3594 Unwed Mothers in Minnesota," Journal of Clinical Psychology, XXII (January, 1956), pp. 21.

children on the various personality traits measured. Variables on which the ratings were significantly favorable to the bright group were: Achievement Affiliation, Autonomy, Cognizance, Creativity, Dominenee, Appearance, Protectiveness, Recognition, Play, Aggression, Exhibition, Emotionality, and Placidity. Variables for which there were ratings with significant differences in the direction of the dull group were: Dependence, Seclusion, Defendance, Deference, Placidity, and Rejection. The bright group was found to be better adjusted.[38]

McElwee made a comparison of the personality traits of 300 normal and intellectually retarded children. The children were rated by teachers on fourteen characteristics. The normal children, it was found, possessed a greater degree of desirable traits than did the retarded children.[39]

Laycock compared a group of fifty-one intellectually superior school children with an equal group of inferior children. Ratings for each child were secured from two successive teachers on a list of 102 personality traits indicative of maladjustment. The inferior group was found

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[38]Georgia F. Lightfoot, Personality Characteristics of Bright and Dull Children (New York: Bureau of Publications Teachers College, Columbia University, 1951), pp. 101-105

[39]E. W. McElwee, "A Comparison of the Personality Traits of 300 Accelerated, Normal and Retarded Children," Journal of Education Research, XXVI (1932), pp. 31-34.

to possess significantly higher ratings on eighty-four of the 102 items. The superior group received higher ratings by the teachers on deference only.[40]

Ferguson and Kennedy made a study of the relationship of intelligence and personality. They found that extremes of intelligence did not appear to be associated with differences in degree of emotional stability. They also found that students who are superior in intelligence are more self-sufficient and independent than normal students and that students with low intelligence test scores and very inferior academic records are more dominant in social behavior and more self-confident than the mentally superior.[41]

McGehee and Louis compared certain personality characteristics of mentally superior and mentally retarded children as measured by the Kuhlmann-Anderson test. They found that more desirable personalities are found among the mentally superior.[42]

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[40]S. R. Laycock, "Adjustment of Superior and Inferior School Children," Journal of Social Psychology, IV (1933), pp. 353-366.

[41]L. W. Ferguson and J. L. Kennedy, "Intelligence Level and Personality," Journal of Social Psychology, VII (1936), pp. 301-308.

[42]William McGehee and Drayton Louis, "A Comparison of Certain Personality Characteristics of Mentally Superior and Mentally Retarded Children," Journal of Education Research, XXXV (April, 1942), pp. 600-610.

CHAPTER III

PROCEDURE

Subjects Used and Reasons for Selection

Twenty-eight girls of the seventh grade of the Boone Elementary School were selected as subjects for this study. This particular group was chosen because (1) the group was enrolled at the school at which the writer taught, and were subsequently easily available for testing; (2) the group was approaching the Junior High level of education; (3) the writer was interested in the results of this study in regard to upper elementary school age girls; and (4) the writer, having taught these students in physical education for the year 1957-1958, was interested in their individual scores on the various tests given.

Reasons for Selection of Tests Used

The Kuhlmann-Finch Intelligence Test was selected for administration because of its reliability rating of from .918 to .933 on total test scores as based on the split half method and corrected by the Spearman Brown Formula.

The California Test of Personality was selected for administration because of its reliability rating of .98 for the entire test and because all subtests are above .82 ranging

to .98 in reliability as computed with the Kuder-Richardson Formula.

In searching for a physical fitness test for elementary school children the writer found that, while there are a few tests of this nature for elementary school age levels, none had been validated. Consequently the Women's Reserve United States Naval Reserve Physical Fitness Test was selected. This test was selected because the testing items are such that they can be applied to any age level, it is convenient to administer, and it can be given in a regular class period.

Description of the Women's Reserve United States Naval Reserve Physical Fitness Test

This test includes four items for the testing of physical fitness. These items with description are as follows:

(1) Straddle Pull Ups	The partner stands astride the subject and the subject pulls up until her chest contacts the inside of the partners thighs.
(2) Dips	The subject lowers the body in a straight line from the head to the knee and touches the chest to the floor.
(3) Squats	The subject goes down and touches the buttocks to the heels, thrusting the arms forward at the same time.
(4) Sit Ups	The subject places the hands behind the head while lying in a supine position, sits up and touches her opposite elbow to her opposite knee, and returns to position.

All items on the physical fitness test are repeated as many times as possible.

Method of Validation of Physical Fitness Test

The Women's Reserve United States Naval Reserve Physical Fitness Test was submitted for validation to a jury of experts in the field of tests and measurements in physical education. The jury consisted of Dr. Richard Tews, Mr. Roger Thomas, and Mr. Francis Hoover, all of the Appalachian State Teachers College Department of Physical Education. The jury concluded that all of the items contained in the test were highly desirable, and that the entire test was desirable as a measurement of physical fitness on the elementary school level.

Administration of Tests

On March 25, 1958, at 9:00 A.M. the Kuhlman-Finch Intelligence Test was given to sixteen of the twenty-eight selected seventh graders, and at 1:00 P.M. on the same date to the remaining twelve students. On March 26, 1958, at 9:00 A.M. the California Test of Personality was given to all subjects, and on March 27 the physical fitness Test was given at 11:35 A.M.

Treatment of Data Concerning Intelligence

Individual tests were scored and an intelligence rating obtained for each subject. These test scores were arranged in a frequency interval column for purposes of correlation.

Treatment of Data Concerning Personality

The Subtests of the California Test of Personality were scored for the class as a whole, and a total score for the entire class on the total test obtained. A class profile was constructed to show adjustment in specific areas and total adjustment of the group as a class. Data necessary for construction of such a profile was obtained by adding all individual scores on each subtest, by adding all total scores on personal and social adjustment, and by adding each individual total personality score and dividing by the number. A table included with the tests was used to assign percentile scores to each class score. This profile is shown in Figure 1. An individual profile sheet was computed for each subject. This profile sheet shows the students personal and social adjustment. Scores which students made on each subtest were set up in frequency intervals.

a. Treatment of Data Concerning Personal Adjustment

Students scoring below the twentieth percentile and above the eightieth percentile in personal adjustment in any

subtest and in any number of subtests, as shown on the individual profile sheets, were isolated for purposes of comparison. Those scoring below the twentieth percentile were divided into three categories: those scoring below on only one subtest, those scoring below on from three to five subtests, and those scoring below on from one to twelve subtests. Students scoring above the eightieth percentile were divided into four categories: those scoring above on only one subtest, those scoring above on two or three subtests, those scoring above on more than three subtests, and those scoring above on from one to twelve subtests.

b. Treatment of Data Concerning Social Adjustment

Students scoring below the twentieth percentile on one or more subtests and above the eightieth percentile in one area only in the social adjustment section of the personality test were categorized.

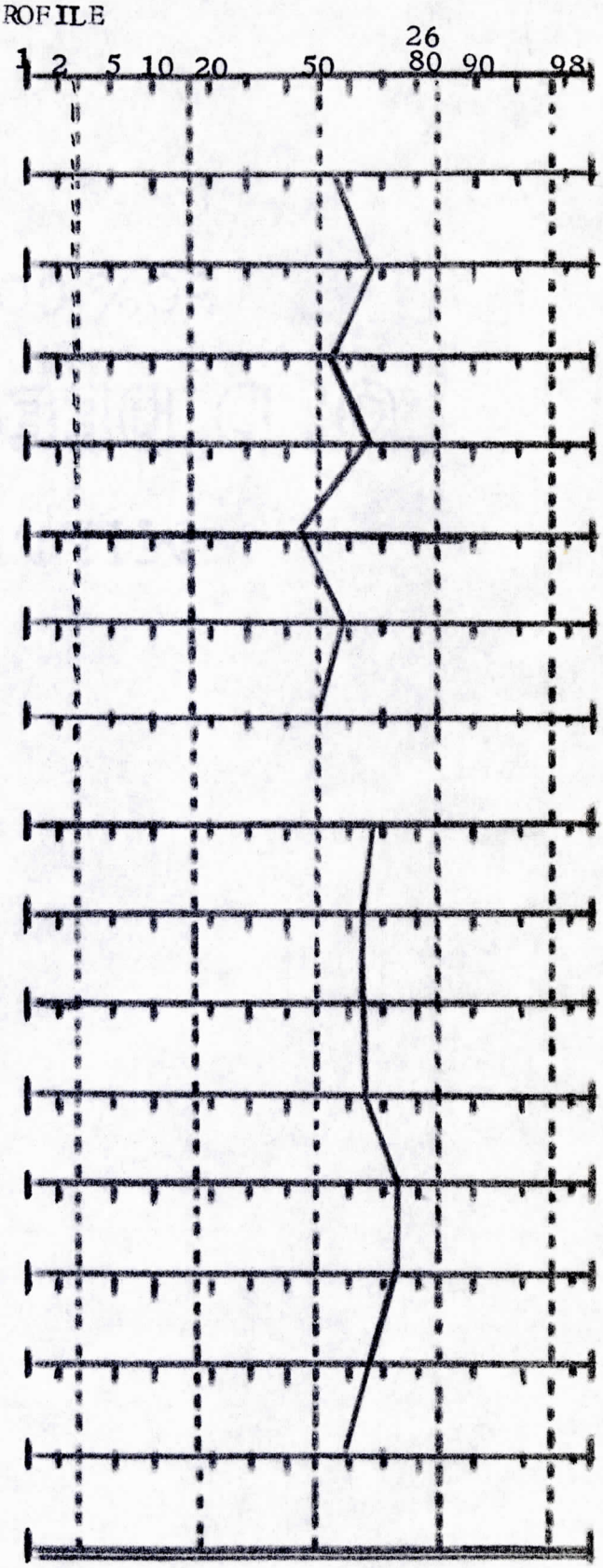
Treatment of Physical Fitness Data

The physical fitness tests were scored and the results tabulated. The mean and standard deviation were computed for each item of the physical fitness test, as shown in Table I. Each individual score on each of the four items in the physical fitness test was converted to a "T" score value, and a total "T" score value obtained for each individual for the

FIGURE I

CLASS PROFILE

	Class Av. Score	Class Per. Rank
A. Self Reliance	9.96	51.607
B. Sense of Personal Worth	12.14	61.43
C. Personal Freedom	12.143	52.86
D. Feeling of Belonging	13.29	62.14
E. Withdrawing Tendencies	10.61	45.61
F. Nervous Symptoms	11.93	57.40
TOTAL (A-F)	70.1	49.86
A. Social Standards	13.9	67.143
B. Social Skill	11.57	60.79
C. Anti Social Tendencies	12.32	61.61
D. Family Relations	13.14	63.93
E. School Relations	13.04	71.61
F. Community Relations	13.04	71.79
TOTAL (A-F)	77.32	64.04
TOTAL ADJUST.	143.82	57.07



test. "T" score conversion Tables II, III, IV, and V give the raw score value and the "T" score value for each of the items of the physical fitness test. Actual conversion of raw scores into "T" scores is given in Table VI.

b Physical fitness scores of students scoring below the twentieth percentile and above the eightieth percentile in any subtest and in any number of subtests in personal adjustment were isolated for purposes of comparison.

Physical fitness scores of students scoring below the twentieth percentile on one or more subtests and above the eightieth percentile in one area only in social adjustment were also isolated for purposes of comparison. Student scores made on the physical fitness test were set up in frequency intervals. Individual results on the personality, intelligence, and physical fitness tests are given in Table VII. The total personal adjustment score and the physical fitness score for each student in each personal adjustment category were tabulated, and an average score for personal adjustment and physical fitness obtained for each category, as shown in Table VIII. Personal adjustment average scores and physical fitness average scores of students scoring below the twentieth percentile in each category were compared with those of students scoring above the eightieth percentile in a corresponding category. A table of differences, as given in Table IX was constructed to show the amount of difference and its consistency or inconsistency in all categories.

TABLE I

MEANS AND STANDARD DEVIATIONS

OF PHYSICAL FITNESS

TEST COMPONENTS

	Mean	Standard Dev.
Straddle Pull Ups	18.43	7.32
Sit Ups	17.47	15.15
Squats	48.97	22.885
Dips	16	8.89

TABLE II

T SCORES FOR SIT UPS

Raw Score	T Score	Raw Score	T Score	Raw Score	T Score	Raw Score	T Score
1	39	18	50.5	35	61.5	52	73
2	40	19	51	36	62	53	73.5
3	40.5	20	52	37	63	54	74
4	41	21	52.5	38	63.5	55	75
5	42	22	53	39	64	56	75.5
6	42.5	23	54	40	65	57	76
7	43	24	54.5	41	65.5	58	77
8	44	25	55	42	66	59	77.5
9	44.5	26	55.5	43	67	60	78
10	45	27	56	44	67.5	61	79
11	46	28	57	45	68	62	79.5
12	46.5	29	57.5	46	69	63	80
13	47	30	58	47	69.5	64	81
14	48	31	59	48	70	65	81.5
15	48.5	32	59.5	49	71	66	82
16	49	33	60	50	71.5	67	83
17	50	34	61	51	72	68	83.5
						69	84
						70	85

TABLE III

T SCORES FOR STRADDLE PULL UPS

Raw Score	T Score	Raw Score	T Score
6	33	21	53
7	34	22	55
8	36	23	56
9	37	24	58
10	38	25	59
11	40	26	60
12	41	27	62
13	43	28	63
14	44	29	64
15	45	30	66
16	47	31	67
17	48	32	68
18	49	33	70
19	51	34	71
20	52	35	72

TABLE IV

T SCORES FOR SQUATS

Raw Score	T Score	Raw Score	T Score	Raw Score	T Score	Raw Score	T Score
39	45.5	40	46	60	55	80	63.5
38	45	41	46.5	61	55.5	81	64
37	45	42	47	62	55.5	82	64.5
36	44.5	43	47.5	63	56	83	65
35	44	44	48	64	56.5	84	65
34	43.5	45	48	65	57	85	65.5
33	43	46	48.5	66	57.5	86	66
32	42.5	47	49	67	58	87	66.5
31	42	48	49.5	68	58.5	88	67
30	42	49	50	69	59	89	67.5
29	41.5	50	50.5	70	59	90	68
28	41	51	51	71	59.5	91	68.5
27	40.5	52	51.5	72	60	92	69
26	40	53	52	73	60.5	93	69
25	40	54	52	74	61	94	69.5
24	39	55	52.5	75	61.5	95	70
23	39	56	53	76	62	96	70.5
22	38	57	53.5	77	62	97	71
21	38	58	54	78	62.5	98	71.5
20	37.5	59	54.5	79	63	99	72
						100	72

TABLE V

T SCORES FOR DIPS

Raw Score	T Score		Score	T Score
4	37		24	59
5	38		25	60
6	39		26	61
7	40		27	62
8	41		28	64
9	42		29	65
10	43		30	66
11	44		31	67
12	45		32	68
13	47		33	69
14	48		34	70
15	49		35	71
16	50		36	73
17	51		37	74
18	52		38	75
19	53		39	76
20	54		40	77
21	56			
22	57			
23	58			

TABLE VI

RAW SCORE CONVERSION INTO T SCORES

WITH TOTAL T SCORE VALUE

	Straddle Pull Ups		Dips		Squats		Sit Ups		Total	
Student A	20	52	10	53	33	43	23	54	95	202
Student B	15	45	21	56	45	48	60	78	150	227
Student C	32	68	18	52	65	57	69	84	175	261
Student D	22	55	13	47	58	54	70	43	100	199
Student E	6	33	4	37	27	40	15	48	52	159
Student F	14	44	7	40	45	48	10	45	76	177
Student G	16	47	11	44	27	40	15	48	69	180
Student H	12	51	7	40	23	39	6	42	48	162
Student I	18	49	15	49	68	58	40	65	141	221
Student J	18	49	17	51	65	57	35	61	135	218
Student K	9	37	5	38	33	43	5	42	52	160
Student L	20	52	30	66	50	50	18	51	118	219
Student M	15	45	9	42	35	44	1	39	60	170
Student N	20	52	13	47	49	50	5	42	87	191
Student O	13	43	15	49	61	55	20	52	109	199
Student P	27	62	18	52	100	72	7	43	152	229
Student Q	24	58	13	47	25	39	14	48	76	192
Student R	34	71	37	74	60	55	22	53	153	253
Student S	32	68	28	64	100	72	15	48	175	252
Student T	14	44	11	44	20	37	20	52	65	177
Student U	13	43	18	52	25	39	18	51	74	185
Student V	17	48	15	49	46	48	10	45	88	190
Student W	30	66	40	77	80	63	20	52	170	258
Student X	12	41	7	40	30	42	4	41	60	164
Student Y	20	52	15	49	34	43	12	47	81	191
Student Z	14	44	9	42	80	63	13	47	116	196
StudentAA	12	41	18	52	20	37	7	43	57	173
StudentBB	11	40	21	56	42	47	20	52	94	195

TABLE VII

TEST RESULTS

	IQ Rating	Physical Fitness Score	Personal Adj. Score	Social Adj. Score	Total Adj. Score
Student A	114	202	68	68	137
Student B	98	227	73	78	151
Student C	110	261	88	88	176
Student D	119	199	78	84	162
Student E	123	159	68	79	147
Student F	96	177	76	85	161
Student G	108	180	81	74	155
Student H	97	162	49	68	117
Student I	99	221	69	82	151
Student J	117	218	70	82	152
Student K	91	160	45	66	111
Student L	118	219	77	82	159
Student M	104	170	61	77	138
Student N	116	191	75	82	157
Student O	125	199	87	83	170
Student P	121	229	73	77	150
Student Q	105	192	60	76	136
Student R	108	253	80	80	160
Student S	106	252	76	86	162
Student T	100	177	67	77	144
Student U	102	185	81	82	163
Student V	106	190	84	79	163
Student W	125	258	83	77	160
Student X	106	164	73	81	154
Student Y	115	191	70	78	148
Student Z	105	196	53	60	113
Student AA	95	173	41	54	95
Student BB	110	195	56	79	135

TABLE VIII

STUDENT SCORES AND AVERAGE STUDENT SCORES ON PERSONAL ADJUSTMENT AND PHYSICAL FITNESS FOR THOSE SCORING BELOW THE 20TH AND ABOVE THE 80TH. PERCENTILE ON PERSONAL ADJUSTMENT AREAS

Students Scoring Below the 20th. Per. in One Area

Student 1	68	159
Student 2	61	170
Student 3	60	192
Student 4	70	191
Student 5	56	195
Average Scores	63	109.4

Students Scoring Above The 80th. Per. in One Area

Student 1	73	227
Student 2	75	191
Student 3	73	164
Student 4	67	177
Average Scores	72	189.75

Students Scoring Over the 80th. Per. In 2 and 3 Areas

Student 1	73	227
Student 2	68	159
Student 3	73	229
Student 4	83	258
Student 5	76	177
Student 6	80	253
Student 7	81	185
Student 8	78	199
Student 9	76	252
Average Scores	76.44	215.44

Students Scoring Below the Twentieth Percentile on From 3 to 5 Areas

Student 1	49	162
Student 2	45	160
Student 3	41	173
Student 4	53	196
Average Scores	47	172.75

Students Scoring Above the 80th. Percentile in More Than 3 Areas

Student 1	88	251
Student 2	87	199
Student 3	81	180
Student 4	84	190
Average Scores	85	207.5

TABLE VIII (continued)

Total Students Scoring Below The 20th. Percentile

	Per. Adj.	Physical Fitness
Student 1	53	196
Student 2	61	170
Student 3	49	162
Student 4	41	173
Student 5	68	159
Student 6	56	195
Student 7	60	192
Student 8	70	191
Student 9	45	160
Average Scores	5.89	177.55

Total Students Scoring Above The 80th. Percentile

	Per. Adj.	Physical Fitness
Student 1	84	190
Student 2	77	219
Student 3	73	227
Student 4	68	159
Student 5	81	180
Student 6	87	199
Student 7	73	229
Student 8	88	251
Student 9	83	258
Student 10	76	177
Student 11	80	253
Student 12	75	191
Student 13	81	185
Student 14	78	191
Student 15	76	253
Student 16	73	164
Student 17	67	177
Average Scores	77.65	207

TABLE IX

TABLE OF DIFFERENCES BETWEEN STUDENTS SCORING BELOW THE TWENTIETH PERCENTILE AND THOSE SCORING ABOVE THE EIGHTIETH PERCENTILE IN PERSONAL ADJUSTMENT

	Per. Adj.	Physical Fitness
Average Scores of Students Scoring Above the Eightieth Percentile in One Area Only	72	189.75
Average Scores of Students Scoring Below the Twentieth Percentile in One Area Only	63	109.4
Differenee in Scores	9	80.35
Average Scores of Students Scoring Above the Eightieth Percentile in 2 and 3 Areas	76.4	215.44
Average Scores of Students Scoring Below the 20th. Percentile in From 3 to 5 Areas	47	172.75
Difference in Scores	29.4	42.69
Average Scores of Students Scoring Above the 80th. Percentile in More Than 3 Areas	85	207.5
Average Scores of Students Scoring Below the 20th. Per. in 3 to 5 Areas.	47	172.75
Difference in Scores	38	34.75
Average Scores of Students Scoring Above the Eightieth Percentile	77.65	207
Average Scores of Students Scoring Below the Twentieth Percentile	55.89	177.55
Difference in Scores	21.76	29.45

Physical fitness and social adjustment scores of those scoring below the twentieth percentile on one or more subtests in the area of social adjustment were averaged, and physical fitness and social adjustment scores of those scoring above the eightieth percentile on one area only were averaged. These averages are given in Table X. These two categories were compared and a table of differences constructed. These differences are given in Table XI.

Average scores on the total test of personality and on the physical fitness test of students scoring below the twentieth and above the eightieth percentiles on any subtest in the total test were computed as shown in Table XIV. Table XII gives the amount of difference between these two comparison groups.

The scores which students made on each subtest of the California Test of Personality, on the entire California Test of Personality, on the Kuhlmann-Finch Intelligence Test, and on the Physical Fitness Test were set up in frequency intervals.

Coefficients of correlation were obtained between intelligence and personality, intelligence and physical fitness, personality and physical fitness, intelligence and personal adjustment, intelligence and social adjustment, physical fitness and personal adjustment, physical fitness and social

TABLE X

STUDENT SCORES AND AVERAGE STUDENT SCORES ON SOCIAL ADJUSTMENT AND PHYSICAL FITNESS FOR THOSE SCORING BELOW THE TWENTIETH AND ABOVE THE EIGHTIETH PERCENTILES IN AREAS OF SOCIAL ADJUSTMENT

Students Scoring Below the Twentieth Percentile In One or More Than One Area

Student 1	41	173
Student 2	49	162
Student 3	53	196
Student 4	45	160
Total Scores	47	172.75

Students Scoring Above the Eightieth Percentile In One Area Only

Student 1	68	159
Student 2	73	164
Student 3	76	252
Student 4	78	199
Student 5	75	191
Student 6	56	195
Average Scores	71	193.30

TABLE XI

TABLE OF DIFFERENCES BETWEEN STUDENTS SCORING BELOW THE TWENTIETH PERCENTILE AND THOSE SCORING ABOVE THE EIGHTIETH PERCENTILE IN SOCIAL ADJUSTMENT

	Soc. Adj.	Phy. Fit.
Students Scoring Below the Twentieth Percentile in One or More Areas	47	172.75
Students Scoring Above the Eightieth Percentile in One Area Only	71	193.30
Difference in Scores	24	20.55

TABLE XII

TABLE OF DIFFERENCES BETWEEN STUDENTS SCORING BELOW THE TWENTIETH PERCENTILE AND THOSE SCORING ABOVE THE EIGHTIETH PERCENTILE IN TOTAL ADJUSTMENT

	Total Adj.	Phy. Fit.
Students Scoring Above the Eightieth Percentile in Any Area	153.43	203.2
Students Scoring Below the Twentieth Percentile in Any Area	126.6	177.5
Difference in Scores	26.83	25.76

TABLE XIV

SCORES AND AVERAGES OF SCORES FOR STUDENTS SCORING BELOW THE TWENTIETH PERCENTILE AND ABOVE THE EIGHTIETH PERCENTILE IN ONE OR MORE AREAS OF TOTAL ADJUSTMENT

Below the 20th. Per. in Any Area

	Adj.	Fit.
Student 1	113	196
Student 2	117	162
Student 3	95	173
Student 4	135	195
Student 5	136	192
Student 6	138	170
Student 7	111	160
Student 8	148	191
Student 9	147	159
Average Scores	126.6	177.5

Above the 80th. Per. in Any Area

	Adj.	Fit.
Student 1	157	191
Student 2	151	227
Student 3	159	219
Student 4	135	195
Student 5	163	190
Student 6	138	170
Student 7	111	160
Student 8	152	218
Student 9	148	191
Student 10	147	159
Student 11	144	177
Student 12	154	164
Student 13	162	252
Student 14	162	199
Student 15	163	185
Student 16	160	253
Student 17	161	177
Student 18	160	258
Student 19	176	261
Student 20	151	221
Student 21	150	229
Student 22	170	199
Student 23	155	180
Average Scores	153.43	203.26

adjustment, and physical fitness and each of the twelve subtests of the California Test of Personality. The areas tested by these twelve subtests are given in Table XIII. The Pearson Product Moment Coefficient of Correlation charts were used to compute all coefficients of correlation.

A multiple coefficient of correlation was then computed between intelligence and personality, with physical fitness held constant.

TABLE XIII

COEFFICIENTS OF CORRELATIONS OBTAINED BETWEEN DIFFERENT VARIABLES CONSIDERED IN THIS STUDY

Personality and Intelligence	.50
Physical Fitness and Intelligence	.233
Physical Fitness and Personality	.063
Personal Adjustment and Intelligence	.537
Social Adjustment and Intelligence	.362
Physical Fitness and Self Reliance	.213
Physical Fitness and Sense of Personal Worth	.198
Physical Fitness and Sense of Personal Freedom	.074
Physical Fitness and Feeling of Belonging	-.263
Physical Fitness and Withdrawing Tendencies	.033
Physical Fitness and Nervous Symptoms	-.12
Physical Fitness and Personal Adjustment	.1105
Physical Fitness and Social Standards	-.0335
Physical Fitness and Social Skills	-.278
Physical Fitness and Anti Social Tendencies	-.195
Physical Fitness and Family Relations	-.35
Physical Fitness and School Relations	-.022
Physical Fitness and Community Relations	-.124
Physical Fitness and Social Adjustment	-.29

CHAPTER IV

RESULTS

The results of this study have been categorized for purposes of clarification and unity.

Personality and Intelligence

A coefficient of correlation of .50 was obtained between personality and intelligence. Although some studies have resulted in insignificant or negative correlations between these two variables, those made by Pearson and Amacher, Lightfoot, McElwee, Laycock, McGehee and Louis, and Featherstone show positive correlation, and their conclusions, as given in Chapter One, are that the more intelligent individual will possess more desirable personality traits than will the intellectually inferior person. This coefficient of correlation, being positive and in agreement with results of previous studies, indicates that the more intelligent individual will probably possess a more desirable personality than will an intellectual inferior.

Physical Fitness and Intelligence

A coefficient of correlation of .233 was found between physical fitness and intelligence. Negative or insignificant correlations have been found to exist between these two

variables. Studies by Hackensmith and Miller, Seegers and Postpichal, and Jones conclude that the athlete is more intelligent as a rule than is the student who has little skill in sports. Because of the differences in results of previous studies concerning these two variables, the coefficient of correlation of .233 is indicative that the individual who is skilled in sports might possibly be more intelligent than the unskilled person. It is however, not significant.

Physical Fitness and Personality

A coefficient of correlation of .063 was obtained between physical fitness and personality. Sperling and Biddulph concluded from their studies that the person who is skilled in sports has more desirable personality traits than does the person who is un-skilled in sports. Other studies, however, show no relationship between these two variables. It is the opinion of many physical educators that physical fitness coming from physical participation in directed activities results in a more well-rounded wholesome personality. Some studies show a high, positive correlation. Because of this disagreement in research and belief there is indication of inaccurate testing of either physical fitness or personality. The coefficient of correlation of .063 is significant

only in that it is positive, showing a very slight tendency in the direction of favorable influence of physical fitness on personality.

Personal Adjustment and Intelligence

A coefficient of correlation of .537 was found between personal adjustment and intelligence. This was to be expected since a coefficient of correlation of .50 was obtained between the total personality test and intelligence, and since other studies have resulted in a relatively high positive correlation coefficient between personal adjustment and intelligence.

Social Adjustment and Intelligence

The coefficient of correlation of .362 between social adjustment and intelligence, when compared with the coefficient of correlation obtained between personal adjustment and intelligence, indicates that the more intelligent person will probably be better socially adjusted than the less intelligent person, but that intelligence plays a bigger role in personal adjustment.

Physical Fitness and Self Reliance

A coefficient of correlation of .213 was obtained between physical fitness and self reliance. Studies, while positively supporting evidence that the athlete is better

adjusted than the non-athlete, do not specify self reliance as a result of superior physical fitness or participation in athletic events. The coefficient of correlation obtained in this study is significant in that it is positive, and in that it is not contradictory to other studies.

Physical Fitness and Sense of Personal Worth

The coefficient of correlation of .198 obtained between physical fitness and a sense of personal worth conflicts with the results of the studies made by Sperling and Biddulph. While they did not specifically measure the individuals feeling of personal worth, the areas in which they did measure and found high positive results would, to some degree, measure this variable. This correlation is significant only in that it is positive.

Physical Fitness and Sense of Personal Freedom

The coefficient of correlation of .074 obtained between physical fitness and sense of personal freedom would seem probable, since no study substantiates the belief that physical fitness will increase a person's sense of personal freedom.

Physical Fitness and Feelings of Belonging

The coefficient of correlation of .263 obtained between

physical fitness and feelings of belonging is contradictory to previous studies which find that the athlete or participand in physical activity is better adjusted than the non-participant, since a feeling of belonging is necessary to good personality adjustment.

Physical Fitness and Withdrawing Tendencies

A coefficient of correlation of .033 was obtained between physical fitness and withdrawing tendencies. This result bears out the findings of Sperling, who found that the athlete is motivated less than the non-athlete by a social love of people. It also is in agreement with the results of the study made by Thune, who found that members of a weight-lifting group felt more strongly than did the controls that they were shy and lacked self confidence.

Physical Fitness and Total Personal Adjustment

A coefficient of correlation of .1105 was obtained between physical fitness and total personal adjustment. This is an insignificant coefficient of correlation, and is contradictory to those reported studies which show a high degree of relationship between these two variables. It is, however, in keeping with those studies that show little or no relationship between these two variables.

Physical Fitness and Social Adjustment

The coefficients of correlation between physical fitness and social adjustment were all negative as follows: physical fitness and social skills, -.278, physical fitness and social standards, -.0335, physical fitness and anti-social tendencies, -.195, physical fitness and family relations, -.35, physical fitness and school relations, -.022, physical fitness and community relations, -.124, and physical fitness and total social adjustment, -.29.

No previous studies show any correlation between these variables; the degree of effect of physical fitness on these variables is not known and adjustment in these areas is not taught in classes concerned with development of physical fitness. The negative coefficients of correlation between physical fitness and anti-social tendencies is upheld by these studies of Sperling and Thune, who found that the athlete is not motivated by a social love of people, and that a studied group of weightlifters felt shy and lacked self confidence.

The negative coefficient of correlation obtained between physical fitness and school relations is understandable if we consider that good school relationship is dependent upon many more individual qualities than the ability to perform well in athletics or to remain physically fit. The negative relationship of physical fitness to total social adjustment

is understandable in regard to this study when we consider the coefficients of correlation obtained between physical fitness and the components of social adjustment. All coefficients of correlation are given in Table XIII.

Comparison of Personal and Social Adjustment and Physical Fitness Scores

A study of the relationship of personal and social adjustment scores to physical fitness scores of students scoring above the eightieth percentile and those scoring below the twentieth percentile on one or more components of the California Test of Personality shows that those students who score above the eightieth percentile in one area only, in two and three areas, in more than three areas, and in any number of areas in the section of personal adjustment consistently scored higher in total personal adjustment and in physical fitness than did those scoring below the twentieth percentile in one area only, in from three to five areas, and in any number of areas on the personal adjustment section. The difference in the scores is significant, as given in Table IX.

A study of the relationship of social adjustment scores and physical fitness scores of students scoring above the eightieth percentile and those scoring below the twentieth percentile in one component of social adjustment shows that

those scoring above the eightieth percentile in one area only made significantly higher scores in total social adjustment and in physical fitness than did those scoring below the twentieth percentile. This difference is given in Table XI.

Comparison of Total Adjustment Scores and Physical Fitness Scores

A study of the relationship of total adjustment scores and physical fitness scores of students scoring above the eightieth percentile and those scoring below the twentieth percentile in any area or in any number of areas on the entire test shows that those scoring above the eightieth percentile scored much higher in total adjustment and in physical fitness than did those scoring below the twentieth percentile in any area, as shown in Table XIV.

Multiple Correlation

The coefficient of correlation obtained from a multiple correlation of the three factors of physical fitness, intelligence, and personality, with physical fitness being held constant was .241. The standard error was .008.

CHAPTER V

SUMMARY AND CONCLUSIONS

It was the purpose of this study to (1) determine the relationship of physical fitness and intelligence; (2) to determine the relationship of physical fitness and personality; and (3) to determine the relationship of intelligence and personality, with physical fitness held constant, of seventh grade girls.

Twenty-eight girls of the seventh grade of the Boone Elementary School were selected as subjects for the study. They were given the Kuhlmann-Finch Intelligence Test, The California Test of Personality, and the Women's Reserve United States Naval Reserve Physical Fitness Test.

The findings of this study were as follows:

1. Positive coefficients of correlation were obtained between the following variables.

   a. Personality and intelligence. . . . . r=.50

   b. Physical fitness and intelligence . . . r=.233

   c. Physical fitness and personality . . . r=.063

   d. Personal adjustment and Intelligence. . r=.537

   e. Social adjustment and intelligence. . . r=.362

   f. Physical fitness and self reliance . . r=.213

   g. Physical fitness and sense of personal worth . . . . . r=.198

h. Physical fitness and sense of personal freedom . . . . . r=.074

i. Physical fitness and withdrawing tendencies . . . . . r=.033

j. Physical fitness and personal adjustment . . . . . r=.1105

2. Negative coefficients of correlation were obtained between the following variables.

a. Physical fitness and feeling of belonging . . . . . r=-.263

b. Physical fitness and nervous symptoms . r=-.12

c. Physical fitness and social standards . r=-.0335

d. Physical fitness and social skills . . r=-.228

e. Physical fitness and anti-social tendencies . . . . . r=-.195

f. Physical fitness and family relations . r=-.35

g. Physical fitness and school relations . r=-.022

h. Physical fitness and community relations . . . . . r=-.124

i. Physical fitness and social adjustment. r=-.29

3. Students who scored above the eightieth percentile in one area only, in two or three areas, in more than three areas, and in any number of areas in the section of personal adjustment on the California Test of Personality consistently scored higher in total personal adjustment and in physical fitness than did those scoring below the twentieth percentile in one area only, in from three to five areas, and in any number of areas on the personal adjustment section.

Students scoring above the eightieth percentile in only one area of the California Test of Personality made significantly higher scores in total social adjustment and in physical fitness than did those scoring below the twentieth percentile in one area only.

Students scoring above the eightieth percentile in any area or in any number of areas on the entire California Test of Personality scored much higher in total adjustment and in physical fitness than did those scoring below the twentieth percentile.

A coefficient of correlation of .241 with a standard error of .008 was obtained between personality and intelligence, with physical fitness held constant.

CONCLUSIONS

These conclusions are based on the results of this study in regard to the twenty-eight seventh grade girls tested.

1. A high degree of personal adjustment will probably accompany a high intelligence.
2. The more intelligent individual will probably possess more desirable personality traits than will an intellectual inferior.
3. A girl who possesses a high degree of intelligence will be better socially adjusted than will an intellectual inferior.
4. A girl who possesses a high degree of intelligence will probably be more physically fit than a girl of lower intelligence.
5. The well adjusted individual will possess a greater degree of physical fitness than will a less well-adjusted person.
6. There is low but positive correlation between personality between personality and intelligence, with physical fitness being held constant.
7. The negative correlations between physical fitness and the components of social adjustment, although statistically of little significance, never the less by their consistent direction present a challenging field for further research.

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